Page 1, Lines 11-16:

In charging batteries and especially if batteries of larger capacity are charged, the effect, that the charging process imposes on the battery, has an increased significance. If during the charging process the voltage, current, temperature or the time of the charging exceeds certain limit values, than it will result in damage to either the battery or in the charging circuit or the battery cannot be charged till the maximum of its capacity or its cycle life time decreases.

A2

Page 1, Lines 17-22:

Most of the practically used charger circuits comprise a unit that performs a certain control function, that prevents the battery voltage during the charging process from exceeding a predetermined limit value. The designs capable of monitoring one or two parameters have simple circuitry but they cannot provide optimum conditions for the battery because the number of parameters that require inspection is much higher than actually monitored.

A3

Page 2, Lines 12-25:

The provision of appropriate conditions will have the higher significance the more one wishes to provide optimum conditions for the battery, whereas the claim for optimization covers the fulfillment of the request of the users, which includes primarily decreasing the charging time. In other words the battery should be charged in the possible shortest time to reach its maximum capacity, and the charging process should at the same time occur under optimum conditions for the battery. This task has been left so far unsolved even if given size capacity and type of batteries by conventional charging circuits. The solution of this task appears to be impossible if it is expected from the control unit to satisfy the above complex range of requirements in the case of batteries of different types, sizes and designs that require different charging conditions. The most difficult is the simultaneous monitoring of the temperature, the electrical limit values of the charging and of the end of charge moment, and providing an immediate and appropriate intervention if it is needed.

A4

Page 2, Lines 26-28:

The object of the invention is to provide a central control unit for controlling the charge of a battery that has universal use, and which is capable of providing optimum conditions both for the battery and the user during the charging process.

Page 4, lines 10-13:

Fig. 2 shows a portion of the central control unit that controls the starting process, in which for the case of clarity the power controller SK has been designated by contact RS of a relay R1 through which the line voltage is passed to the charger circuit CH.

Page 4, Lines 14-19:

The relay R1 is connected in the circuit of transistor T1 between the ground and an internal power voltage +U. The base of the transistor T1 receives from line L1 through a series connection of diodes either reverse of forward control voltage, wherein the series diode chain constitutes a voltage step. Between the collector and the emitter of the transistor T1 a manually operated switch S1 is provided to enable manual switching on of the relay R1 even if the transistor T1 is blocked.

Page 4, Line20-Page 5, Line 11:

A zener diode Z1 is connected between the supply voltage +U and the ground through a resistor, and coupled through potentiometer P1 to negative input of a comparator K to pass there a stabilized voltage U_o. This voltage is equal to the possible smallest voltage of the battery B to be charged. The positive input of the comparator K is connected through a voltage divider to the positive terminal of the battery B. The comparator K compares the actual voltage of the battery B with the voltage U_o, and provides a positive voltage at its output only if the condition $U_B > U_o$ is met. This condition (i.e. $U_B > U_o$) will not be applicable to any battery other than that which is defective or completely discharged and such batteries are likely to be inappropriate for being charged. By setting this condition for allowing the start of the charging process on the first hand it is indicated that the battery is not in a condition for being charged and on

the other hand the charging circuit is protected. The positive voltage at the output of the comparator K sets the control line L1 through a resistor to this positive level, and under its effect the transistor T1 opens and allows the charging by pulling the relay R1. If the voltage of the battery does not reach the voltage level U_o, then a light emitting diode indicates this fact, and a zero level will prevail at the line L1, and the transistor T1 will cut off. It should be noted that during any normal charging process the comparator K has always a positive output voltage, and this condition will be upset only if the battery B is removed from the unit that returns the central control unit to initial state as will be described later. This protection remains operative even if during an ongoing charging process the battery B or a cell thereof gets shorted or an accidental short circuit occurs.